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MEMORANDUM

DATE. 2 December 1998

TO David Bennett, WAM, U.S. EPA, Region X

FROM: Michelle Turner, Chemist, WESTON, Seattle
rnm Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT: Validation of Organotin Data
Laboratory Batch: K9806072
Site: Duwamish River

WORK ASSIGNMENT NO: 46-35-0JZZ

WORK ORDER NO.: 4000-019-038-5200-00

DOC. CONTROL NO.: 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U.S EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle
Kevin Mundell-Jackson, Database Management, WESTON

The quality assurance review of eight porewater samples, laboratory batch K9806072, collected from the Duwamish River has been completed. The porewater samples were analyzed for organotins by Columbia Analytical Services of Kelso, Washington Samples were analyzed by gas chromatography with an FPD detector. The samples were numbered:

98364043	98364044	98364045	98364046
98364047	98364048	98364049	98364050

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract. The review follows the format described in the *National Functional Guidelines for Organic Data Review* (EPA OSWER Directive 9240.1, February 1994), modified to include specific requirements of analytical methods.

1. Timeliness

Holding time limits of 7 days for sample extraction and additional 7 days for analysis were established in the project Sampling and Analysis plan. All samples exceeded holding time criteria as follows:

Sample ID	Date Collected	Date Extracted	Date Analyzed	No of Days
98364043	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364044	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364045	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364046	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364047	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364048	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364049	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8
98364050	9/2/98	9/9/98 (Porewater) 9/16/98	9/24/98	8

Sample results were qualified as estimated (J). Undetected results were also qualified as estimated (UJ).

2. Detection Limits

Detection limits met project required quantitation limits with the following exceptions:

Sample	Compound	QL Goal (µg/L)	Reported QL (µg/L)
98364043	Tri-n-butyltin	0 02	0 05
98364044	Tri-n-butyltin	0 02	0 05
98364045	Tri-n-butyltin	0 02	0 05
98364046	Tri-n-butyltin	0 02	0 05
98364047	Tri-n-butyltin	0 02	0 05
98364048	Tri-n-butyltin	0 02	0 05
98364049	Tri-n-butyltin	0 02	0.05
98364050	Tri-n-butyltin	0 02	0 05

Where quantitation limit goals were exceeded, undetected analytes were qualified (UI) to indicate an elevated quantitation limit.

3. Initial Calibration

A seven-point initial calibration was performed prior to each analytical batch The percent relative standard deviation for the initial calibration was within limits of less than 25 percent RSD.

4. Continuing Calibrations

Continuing calibration check was performed after every 10 samples All target analytes were within required limits for the continuing calibrations with the percent difference for a mid-range standard less than 25 percent with the following exceptions:

Date	Compound	% Difference	QC Limit	Associated Samples
9/25/98	Tetra-n-butyltin	29 %	± 25 %	98364043 through 98364050

Sample results for compounds associated with the above calibrations have been qualified as estimated (J) Undetected results have also been qualified as estimated (UJ)

5. Blanks

a) Laboratory Method Blanks

Laboratory method blank frequency criteria were met. No target analytes were reported in laboratory method blanks.

b) Field Blanks

No field blanks were associated with this SDG.

6 Surrogate Compound Recovery

Surrogate recovery goals for tri-n-propyltin were established in the project Sampling and Analysis Plan at 60 to 120 percent for porewater. Based on conversations with the laboratory an additional surrogate, tripentyltin was added and historical laboratory control chart limits were also used for data qualification Laboratory limits are presented below:

Surrogate Compound	Porewater Limits
Tripropyltin	21-107%
Tripentyltin	21-116%

Surrogate compound percent recovery met quality control criteria for all samples, with the exception of the following:

Sample	Surrogate	Percent Recovery
98364043	Tri-n-propyltin	41
98364043	Tri-n-pentyltin	40
98364044	Tri-n-propyltin	40
98364044	Tri-n-pentyltin	38
98364045	Tri-n-propyltin	32
98364045	Tri-n-pentyltin	34
98364046	Tri-n-propyltin	36
98364046	Tri-n-pentyltin	31
98364047	Tri-n-propyltin	38

Sample	Surrogate	Percent Recovery
98364047	Tri-n-pentyltin	37
98364048	Tri-n-propyltin	48
98364048	Tri-n-pentyltin	48
98364049	Tri-n-propyltin	54
98364049	Tri-n-pentyltin	57
98364050	Tri-n-propyltin	59
98364050	Tri-n-pentyltin	52
K980916-LCS	Tri-n-propyltin	37
K980916-LCS	Tri-n-pentyltin	50
K980816-MB	Tri-n-propyltin	31
K980916-MB	Tri-n-pentyltin	45

Sample results were qualified as estimated (J) when both surrogate recoveries were outside project limits .

7. Laboratory Control Sample (LCS)

LCS recovery goals for tributyltin were established in the project Sampling and Analysis Plan at 60 to 130% for porewater. Based on conversations with the laboratory, historical control chart limits were also used for data qualification.

The following LCS recoveries exceeded the QC guidelines (P-project, L-laboratory) as follows:

LCS	Analyte	Percent Recovery	QC Limit	Associated Samples
K980816-LCS	Tetra-n-butyltin	52	60-130 (P) 23-131 (L)	98364043 through 98364050
K980816-LCS	Tri-n-butyltin	52	60-130 (P) 23-131 (L)	98364043 through 98364050
K980816-LCS	Di-n-butyltin	48	60-130 (P) 16-118 (L)	98364043 through 98364050
K980816-LCS	n-Butyltin	36	60-130 (P) 17-128 (L)	98364043 through 98364050

Sample results were qualified as estimated (J) when LCS recoveries were outside project limits.

8. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

No matrix spike/matrix spike duplicate analysis was performed for this sample delivery group

9. Field Duplicate Analysis

No field duplicates were associated with this sample delivery group.

10 Sample Analysis

A cursory review of raw data was performed. Deliverables were complete. The cooler receipt form prepared by the laboratory indicated that the temperatures of several coolers were elevated Cooler temperatures ranged from 2.9 degrees C to 13 7 degrees upon receipt The case narrative indicated that approximately 50 percent of the extract for sample 98364048 was lost during centrifugation. The final extract was concentrated to a final volume of 0 3 ml (vs. the routine 0.5 ml) to compensate for the loss No other unusual problems were noted.

11. Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected.

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard.

R - Quality control indicates that data are unusable (compound may or may not be present) Resampling and reanalysis are necessary for verification.

N - Presumptive evidence of presence of material (tentative identification)

I - Elevated reporting limit due to matrix interference.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364043	Units	ug/L (ppb)
Lab Code	K9806072-001	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND	0.05UJ
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 04	J
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 01	J
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	0.05UJ

VCT 11/12/98

Approved By _____ Date 9-30-98

1S22/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364044	Units	ug/L (ppb)
Lab Code	K9806072-002	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND	0.05 UJ
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 02	(J)
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 01	(J)
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	0.05 UJ

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Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364045	Units	ug/L (ppb)
Lab Code	K9806072-003	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND	0.05UJ
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 01	(J)
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	ND	0.05UJ
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	↓

WCT 11/12/98

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364046	Units	ug/L (ppb)
Lab Code	K9806072-004	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND	0.05UJ
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 02	(J)
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	ND	0 05UJ
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	↓

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364047	Units	ug/L (ppb)
Lab Code	K9806072-005	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND 0.05 UJ	
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 02	(J)
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	ND 0.05 UJ	
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND ↓	

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364048	Units	ug/L (ppb)
Lab Code	K9806072-006	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND 0.05UJ	
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 008	(J)
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	ND 0 05UJ	
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	↓

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Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364049	Units	ug/L (ppb)
Lab Code	K9806072-007	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND	0.05UJ
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 08	J
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	0 01	(J)
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	0 05UJ

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Roy F Weston, Inc	**Service Request:**	K9806072
Project:	Duwamish River/4000-027-001-2019-38	**Date Collected:**	9/2/98
Sample Matrix:	Sediment	**Date Received:**	9/3/98

Butyltins in Porewater

Sample Name	98364050	Units	ug/L (ppb)
Lab Code	K9806072-008	Basis	NA
Test Notes			

Analyte	Prep Method	Analysis Method	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
Tetra-n-butyltin	Method	Butyltins	0 05	0 009	1	9/16/98	9/24/98	ND	0 05UJ
Tri-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	ND	0.05UIJ
Di-n-butyltin	Method	Butyltins	0 05	0 005	1	9/16/98	9/24/98	ND	0.05UJ
n-Butyltin	Method	Butyltins	0 05	0 01	1	9/16/98	9/24/98	ND	0.05UJ

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